IN THE CLAIMS

1. (Currently Amended) A method for a Max Sessions Server (MSS) of a data communications network ~~keeping~~ to keep a count of the sessions used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~user logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user; and

responding to a new user's attempt to log in to the data communications network by checking to see if the UIV of the new user is already included in an existing entry in the master list, and if it is, clearing the existing entry ~~in~~ from the master list and ~~entering~~ adding a new entry to the master list, the new entry containing at least the new user's UIV and group identification information ~~in the master list~~.

2. (Currently Amended) A method in accordance with claim 1, said responding further comprising:

decrementing a counter associated with ~~a~~ the group identification information associated with the UIV of the cleared existing entry; and

incrementing a counter associated with ~~a~~ the group identification information associated with the UIV of the added new entry of the new user.

3. (Original) A method in accordance with claim 1, further comprising:

rejecting the new user's attempt to log in to the data communications network if the log in would cause a counter associated with a group to which the new user belongs to exceed a predetermined number of maximum sessions.

4. (Original) A method in accordance with claim 2, further comprising:

rejecting the new user's attempt to log in to the data communications network if the log in would cause a counter associated with a group to which the new user belongs to exceed a predetermined number of maximum sessions.

5. (Original) A method in accordance with claim 1, further comprising:

allowing the new user's attempt to log into the data communications network if the log in would not cause a counter associated with a group to which the new user belongs to exceed a predetermined number of maximum sessions.

6. (Original) A method in accordance with claim 2, further comprising:

allowing the new user's attempt to log into the data communications network if the log in would not cause a counter associated with a group to which the new user belongs to exceed a predetermined number of maximum sessions.

7. (Original) A method in accordance with claim 1, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

8. (Original) A method in accordance with claim 2, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

9. (Original) A method in accordance with claim 3, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

10. (Original) A method in accordance with claim 4, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

11. (Original) A method in accordance with claim 5, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

12. (Original) A method in accordance with claim 6, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

13. (Currently Amended) A method for a Resource Control Server (RCS) of a data communications network ~~keeping~~ to keep a count of a particular resource used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~user logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user; and

responding to a new user's attempt to log in to the data communications network by checking to see if the UIV of the new user is already included in an existing entry in the master list, and if it is, clearing the existing entry ~~in~~ from the master list and ~~entering~~ adding a new entry to the master list, the new entry containing at least the new user's UIV and group identification information ~~in the master list~~.

14. (Currently Amended) A method in accordance with claim 13, said responding further comprising:

decrementing a counter associated with ~~a~~ the group identification information associated with the UIV of the cleared existing entry; and

incrementing a counter associated with ~~a~~ the group identification information associated with the UIV of the added new entry of the new user.

15. (Original) A method in accordance with claim 13, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

16. (Original) A method in accordance with claim 14, wherein said assigning includes:

forming said UIV from a port identification associated with the port and from a NAS identification associated with the NAS.

17. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for a Max Sessions Server (MSS) of a data communications network ~~keeping~~ to keep a count of the sessions used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~user logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user; and

responding to a new user's attempt to log in to the data communications network by checking to see if the UIV of the new user is already included in an existing entry in the master list, and if it is, clearing the existing entry ~~in~~ from the master list and ~~entering~~ adding a new entry to the master list, the new entry containing at least the new user's UIV and group identification information ~~in the master list~~.

18. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for a Resource Control Server (RCS) of a data communications network ~~keeping~~ to keep a count of a particular resource used at a given time by a group of users and to correct said count to

compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~user logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user; and

responding to a new user's attempt to log in to the data communications network by checking to see if the UIV of the new user is already included in an existing entry in the master list, and if it is, clearing the existing entry ~~in~~ from the master list and ~~entering~~ adding a new entry to the master list, the new entry containing at least the new user's UIV and group identification information ~~in the master list~~.

19. (Currently Amended) A method for a Max Sessions Server (MSS) of a data communications network ~~keeping~~ to keep a count of the sessions used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~user logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user;

periodically checking a NAS to determine if it has become non-operational; and

responding to the non-operational status of a NAS by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the sessions used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

20. (Original) A method in accordance with claim 19 wherein said periodically checking is performed by an Authentication, Authorization and Accounting Server (AAA) associated with the MSS.

21. (Original) A method in accordance with claim 19, further comprising:

transmitting a communication to another MSS on the data communications network to inform it of the non-operational status of a NAS.

22. (Currently Amended) A method in accordance with claim 21, further comprising:

receiving a communication from another MSS on the data communication network advising of the non-operational status of a NAS; and

responding to said communication by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the sessions used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

23. (Currently Amended) A method for a Resource Control Server (RCS) of a data communications network ~~keeping~~ to keep a count of a particular resource used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~used logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user;

periodically checking a NAS to determine if it has become non-operational; and

responding to the non-operational status of a NAS by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the particular resource used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

24. (Original) A method in accordance with claim 23 wherein said periodically checking is performed by an Authentication, Authorization and Accounting Server (AAA) associated with the MSS.

25. (Original) A method in accordance with claim 23, further comprising:

transmitting a communication to another MSS on the data communications network to inform it of the non-operational status of a NAS.

26. (Currently Amended) A method in accordance with claim 25, further comprising:

receiving a communication from another MSS on the data communication network advising of the non-operational status of a NAS; and

responding to said communication by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the particular

resource used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

27. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for a Max Sessions Server (MSS) of a data communications network ~~keeping~~ to keep a count of the sessions used at a given time by a group of users and to correct said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~used logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of~~ ~~UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user;

periodically checking a NAS to determine if it has become non-operational; and

responding to the non-operational status of a NAS by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the sessions used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

28. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instruction executable by the machine to perform a

method for a Resource Control Server (RCS) of a data communications network ~~keeping~~ to keep a count of a particular resource used at a given time by a group of users and to correct

said count to compensate for abnormal disconnections of users belonging to said group, said method comprising:

assigning a unique identification ~~values (UIVs)~~ value (UIV) to each ~~used logged in at a~~ port of a network access server (NAS) of the data communications network;

maintaining a master list having a plurality of entries, each entry containing at least (a) ~~of UIVs~~ a UIV associated with a logged in ~~users~~ user and ~~their~~ (b) respective group identification information for said logged in user;

periodically checking a NAS to determine if it has become non-operational; and

responding to the non-operational status of a NAS by removing all entries having UIVs associated with the non-operational NAS from said master list and decrementing the count of the particular resource used by the number of ~~UIVs~~ removed ~~from said master list~~ entries that correspond to the group.

29. (Original) An abnormal user disconnection and compensation system for a Max Sessions Server (MSS) keeping a count of the sessions used at a given time by a group of users, said system comprising:

a MSS;

a database maintained by said MSS including for each user logged into the data communications system through the MSS, the user belonging to a group, a unique identification value (UIV) associated with the user's connection to the data communications network through a particular port of a particular Network Assess Server (NAS) for the data communications network, and group identification information associated with the user;

a checker to compare each new log in request directed to the MSS with the contents of said database to determine if a UIV of the new log in request matches an existing UIV in the database; and

a clearer to clear existing information in the database associated with said UIV if said checker determines that a UIV in the database is the same as the UIV of a new log in request.

30. (Original) A system in accordance with claim 29, further comprising:

a counter keeping a count of sessions used by a group of users.

b1

31. (Original) A system in accordance with claim 30, further comprising:

an incrementer incrementing said counter for each new log in by a member of said group of users.

32. (Original) A system in accordance with claim 31, further comprising:

a decrementer decrementing said counter for each disconnection of a member of said group of users.

33. (Original) A system in accordance with claim 32, further comprising:

a log in rejector rejecting a user belonging to said group of user's attempts to log in if said log in would cause said counter to exceed an authorized session count for said group of users.

34. (Original) A system in accordance with claim 33, further comprising:

a NAS checker checking a NAS associated with said MSS to determine if it has become non-operational; and

a broken NAS clearer clearing existing information in the database associated with a NAS if said NAS checker determines said NAS to be non-operational.

35. (Original) A system in accordance with claim 34, further comprising:

a transmitter transmitting a communication to another MSS on the data communications network to inform it of the non-operational status of a NAS.

b1

36. (Original) A system in accordance with claim 33, further comprising:

a receiver receiving communications over the data communications network informing of the non-operational status of a NAS.

37. (Original) A system in accordance with claim 36, further comprising:

a broken NAS clearer clearing existing information in the database associated with a NAS if said receiver is informed of the non-operational status of said NAS.

38. (Original) An abnormal user disconnection and compensation system for a Resource Control Server (RCS) keeping a count of the particular resource used at a given time by a group of users, said system comprising:

a RCS;

a database maintained by said RCS including for each user logged into the data communications system through the RCS, the user belonging to a group, a unique identification value (UIV) associated with the user's connection to the data communications network through a

particular port of a particular Network Assess Server (NAS) for the data communications network, and group identification information associated with the user;

a checker to compare each new log in request directed to the RCS with the contents of said database to determine if a UIV of the new log in request matches an existing UIV in the database; and

a clearer to clear existing information in the database associated with said UIV if said checker determines that a UIV in the database is the same as the UIV of a new log in request.

39. (Original) A system in accordance with claim 38, further comprising:

a counter keeping a count of resources used by a group of users.

b1

40. (Original) A system in accordance with claim 39, further comprising:

an incrementer incrementing said counter for each new use of resources in by a member of said group of users.

41. (Original) A system in accordance with claim 40, further comprising:

a decrementer decrementing said counter for each disconnection of a member of said group of users using resources.

42. (Original) A system in accordance with claim 41, further comprising:

a NAS checker checking a NAS associated with said RCS to determine if it has become non-operational; and

a broken NAS clearer clearing existing information in the database associated with a NAS if said NAS checker determines said NAS to be non-operational.

43. (Original) A system in accordance with claim 42, further comprising:

a transmitter transmitting a communication to another RCS on the data communications network to inform it of the non-operational status of a NAS.

44. (Original) A system in accordance with claim 41, further comprising:

a receiver receiving communications over the data communications network informing of the non-operational status of a NAS.

45. (Original) A system in accordance with claim 44, further comprising:

a broken NAS clearer clearing existing information in the database associated with a NAS if said receiver is informed of the non-operational status of said NAS.

46. (Previously Amended) A method for a Max Sessions Server (MSS) to detect hardware or communication failures at a Network Assess Server (NAS) or at a particular port on said NAS, said method comprising:

maintaining a master list of unique identification numbers associated with each logged in user;

responding to a user's attempt to log into the data communications network by checking to see if the unique identification number associated with the user is already on the master list;

removing the unique identification number from the master list if said unique identification number already appears on the master list;

decrementing corresponding MSS counter(s) by one if said unique identification number is already on the master list;

receiving notification from an associated Authentication, Authorization, and Accounting (AAA) server when said NAS fails a communications check performed by the AAA server;

removing all said unique identification numbers associated with said NAS from the master list if said NAS fails said communications check; and

decrementing the MSS counters by the total number of lost connections on said NAS if said NAS fails said communications check.

47. (Original) A method according to claim 46, further comprising:

broadcasting said NAS failure to all MSSs associated with said NAS.

b1

48. (Original) A method according to claim 46, further comprising:

rejecting the user's attempt to log in if the user's log in would cause a count of the sessions in use by the user or by a group to which the user belongs to exceed a predetermined number of maximum sessions allowed by the MSS for the user or the group to which the user belongs.

49. (Original) A method according to claim 46, further comprising:

allowing the user's attempt to log in if the user's log in would not cause a count of the sessions in use by the user or a group to which the user belongs to exceed a predetermined maximum number of sessions allowed by the MSS for the user or the group to which the user belongs;

incrementing the corresponding counter(s) of number of logged in sessions by one;

adding the said unique identification number to the master list.

50. (Original) A method according to claim 46, wherein:

the unique identification numbers are formed by concatenation of a NAS identifier and a port identifier.